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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,097	03/12/2004	Christopher M. Lange	H16876US CON2 (1161.11641	7635

128 7590 01/05/2005

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EXAMINER	
LEYKIN, RITA	

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 01/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/799,097	LANGE ET AL.	
	Examiner	Art Unit	
	Rita Leykin	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 November 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *23-75* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *64-67* is/are allowed.

6)☒ Claim(s) *23-75* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06/10/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This office action is in response to arguments filed on 11/09/2004. Applicant submits that Hudson et al. US# 5,970,997 does not teach the first step of providing power to the drive motor to move the movable member against the biasing force. After considering applicant's arguments examiner disagreed. As applicant mentions in Hudson et al. motor causes the transmission to turn bias shaft 20, which winds spring 18, thus storing kinetic energy. It is the examiner position, that storing kinetic energy will require pushing the spring, or in other words, acting against biasing force. Hudson et al. teach in column 13, lines 4-27 that controller 136 determines whether a load and and/or spring is connected to the actuator by monitoring the direction of motor rotation and the motor speed in order to detect motor stall. When torque produced by the drive motor 112 is insufficient to overcome the resistance of the connected load or spring, the motor will stall indicating that the load is connected to positioning member 134 or that bias member 118 is being wound by rotation of drive motor 112 in the selected direction. The apparatus for detection of stalls in actuator 110 is shown in Fig.13.

Hudson et al. does not teach step of reducing the power applied to the drive motor to maintain the movable member at substantially stalled position when it is determined that motor has stalled. However, Erdman et al. US # 6,114,408 teach in the abstract a bridge power supply, provided to further reduce power consumption, wherein the motor is protected under stall conditions by a current limiting circuit and a timed retry

circuit. Erdman et al. teaching is related to "fan load" motor control and can be applicable to other motor control designs, where the prevention of overload is desirable including actuator motors.

With respect to next argument regarding claims 42, 58, 61, 72 or 74 that includes:

Providing power to the drive motor to move the damper to the open position via the gear assembly, wherein the power provided to the drive motor is below a level where the drive motor would produce the damaging force when the motor stalls. As in the previous consideration, the presence of excessive torque will call for excessive or overload currents that can be prevented by applying reduced power to the motor as in the combination of above teachings.

Based on the above response examiner maintains the rejection as follows.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 23-63 and 68-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hudson et al. US # 5,970,997 and Erdman et al. US # 6,414,408.

With respect to above independent claims 23, 29, 35, 42, 51, 58, 61, 68, 70, 72 and 75 and also claims 26, 27, 31, 32, 38, 39, 54, 55, 69 and 71, Hudson et al. teach an apparatus for effecting actuation of a device which employs a single motor for providing a drive force and for setting a bias member, such as spring. Wherein the apparatus includes a controller coupled to a drive motor. In Fig. 1 the apparatus 10 including a drive motor 12 connected by a drive shaft 14 to a transmission member (planetary gear assembly) 16. The transmission member 16 is connected to a bias member 18 via a bias shaft 20 and is connected with a drive member 22 via input shaft 20, and is connected with a drive member 22 via an input shaft 24. In operation of the above apparatus a home position may be, for instance, normally open or a normally closed establishing one extreme of traveling and set position may be any position other than a home position. Consequently when an extreme of travel of valve is reached, actuating shaft 34 cannot further rotate in the direction, urging valve toward its limit, (see Fig.1, 2 and column 4, lines 4-63). In Hudson et al. the load and the spring are detected by monitoring the rotation of positioning member and bias member respectively to detect a stall before the positioning member and biasing member, respectively, exceed a predetermined position, (see abstract).

With respect to claims 24, 25, 28, 30, 33, 34, 36, 37, 40, 43-50, 52, 53, 56, 57, 59, 60, 62, 63, 73, 75, Hudson et al. do not teach monitoring electrical characteristic of the drive motor and monitoring characteristic threshold. However, Erdman et al. provide teaching for integral electronically commuted fan motor control, wherein power supply is provided to further reduce power consumption. In Fig. 22A the current limiting circuit

1260 controls the current through the motor windings as set by resistor 170, which is in series with the switching circuit 157, (see column 21, lines 66, 67). In Erdman et al. periodic retry cycle is provided to reduce motor heating when the rotor is stalled, (see column 22, lines 36-43). And wherein the motor is protected under fault and stall conditions by a current limiting circuit and timed retry circuit, (see abstract and Fig. 21, 22 and column 15, lines 61-67, column 17, lines 24-38). Erdman et al. also utilizing a Hall sensor to provide positional control signals. In Fig. 22B and 22C the circuitry calculates desired correct turnoff signal over wide range of motor speeds, wherein the turnoff signal controls energization of the motor windings as a function of relative rotor position.

Hence, it has been obvious to one of ordinary skills in the art, at the time invention was made to combine above teachings to provide monitoring of actuator position in combination with reduction of power supply to the motor.

The reason is to reduce power consumption.

3. Claims 64-67 are allowed.

4. The following is a statement of reasons for the indication of allowable subject matter. The prior art made of record in the attached form PTO-892 considered to be pertinent to the submitted application.

However, none of the prior art teaches or suggest in combination:

- Determining when the drive motor stalls at a stalled position by detecting an increase in drive power that is not consistent with a slop of drive power.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rita Leykin whose telephone number is (571)272-2066. The examiner can normally be reached on Monday-Friday 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571)272-2107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rita Leykin
Primary Examiner
Art Unit 2837

R.L.